National Ocean Service
Hollings Marine Laboratory

1) The most recent laboratory evaluation for the Hollings Marine Laboratory was conducted as part of a comprehensive NOS internal program evaluation concluded in 1999. This document is a large notebook and in unavailable in pdf format. We suspect the substance of this report may be marginally relevant to the Research Review Team.

2) Please provide a brief history, and mission of your laboratory /center.

A Joint Project Agreement among the organizations at the South Carolina Marine Resources Center established the Hollings Marine Laboratory (HML) in July 2000. The partners include the National Oceanic and Atmospheric Administration, the National Institute of Standards and Technology, the South Carolina Department of Natural Resources, the University of Charleston, SC, and the Medical University of South Carolina. The mission of the HML is ***to provide science and biotechnology applications to sustain, protect, and restore coastal ecosystems emphasizing linkages between environmental condition and the health of marine organisms and humans.*** The HML became operational in July 2003 and provides an environment and an organizational structure that facilitates collaboration among the partners and emphasizes the strengths and expertise of the scientific institutions at Fort Johnson. All partners contribute to the research products of the HML.

3) Please provide a listing of *major* customers of the laboratory /center, with a one sentence description of what is being done for them.

- US Environmental Protection Agency, National Institute for Standards and Technology and NOS: provide the space and technology for the development of methods for detecting emerging chemicals of concern in the marine environment including pharmaceuticals and new generation pesticides. This includes working with NIST to develop reference materials and new methods.
- National Institute of Standards and Technology: provide space and facilities for NIST Quality Assurance and Marine Specimen Banking Programs.
- United States Department of Agriculture, NOAA/NOS/NCCOS, Medical University of South Carolina, SC Department of Natural Resources: provide space and facilities for the conduct of a Marine Genomics Research Program which is developing technology for evaluating the cumulative response of marine organisms to pollution exposure and disease.
- NOAA/NOS: Provide space and facilities for coral health and disease research, including biomarker development and testing.
- College of Charleston: provide space and facilities for research on marine organisms as vectors for human pathogens.

- SC Department of Natural Resources: provide space and facilities for development of culture technologies for fisheries restoration and evaluation of the benefits and risks of farmed vs. wild seafood products
- Center for Disease Control and Prevention and SC Department of Natural Resources: provide space and facilities and for the evaluation of the role of holding ponds as breeding grounds for harmful algae blooms that affect fish and shellfish as well as humans.
- NOS: provide space and facilities for evaluating the linkages between the coastal landscape and the condition of tidal creek ecosystems including their impacts on public health.

4) A short summary of research being conducted

- *Research Theme:* The Emerging Chemicals of Concern Program is developing methods for detecting the impacts of pharmaceuticals and new pesticides (fipronil) for tissues, sediments and water for the marine environment including conduct including conduct of toxicological evaluations. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by providing the tools needed to assess the impact new and emerging chemicals on the marine environment. *Geographic scope*: national, regional *Time Frame*: medium (5-10 years)
- *Research Theme:* The NIST provides Quality Assurance and Marine Specimen Banking program develops the standard reference materials and new methods for tissues and sediment in the marine environment. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by providing the reference materials and methods for measuring key pollutants in sediments and tissues. *Geographic scope*: global, national *Time Frame*: long (decades)
- *Research Theme:* The Marine Genomics Program is developing the biotechnology to assess organism health to multiple stressors for model marine species including the American oyster, white shrimp, and red drum. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by providing sublethal, early warning indicators of ecosystem condition. It will also assist in identifying and partitioning causative factors. *Geographic scope*: national, regional *Time Frame*: long (5-10 years)
- *Research Theme:* The Coral Health and Disease Research Program is developing the biotechnology to assess coral health to multiple stressors. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by providing sublethal, early warning indicators of coral ecosystem condition. It will also assist in identifying and partitioning causative factors. *Geographic scope*: global, national *Time Frame*: long (5-10 years)
- *Research Theme:* The Marine Organisms as Vectors for Human Pathogens is evaluating the role of natural and anthropogenic stressors on the ability of oysters and other marine species to serve as reservoirs for human pathogen. *Relationship to NOAA program*: This research supports NOAA's ecosystem

management goal by providing information that is critical for predicting the role of water quality and contaminants in seafood safety and organism health. *Geographic scope*: regional *Time Frame*: medium (2-5 years)

- *Research Theme:* The Fisheries Restoration Program is developing the technology for restoring red drum fisheries in the Southeast and for culturing white shrimp. A by-product of this program is that it provides material that can be used to compare the human benefits and risks of farmed vs. wild seafood products. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by providing technology that can be used to restore fisheries and also provides critical information about the health benefits and risks of seafood consumption. *Geographic scope*: regional *Time Frame*: medium (2-5 years)
- *Research Theme:* The SC Harmful Algae Task Force Program is developing the technology for assessing the ecosystem and human health threats associated with stormwater holding ponds, including restoration technology. A by-product of this program will be new biotechnology for determining the abundance of "key" harmful algae species in marine environments. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by providing information that is critical for evaluating the ecosystems and human health benefits and risks of stormwater management strategies. *Geographic scope*: regional *Time Frame*: medium (2-5 years)
- *Research Theme:* The Tidal Creeks Program is evaluating the linkages between the degree and type of development in the coastal landscape and ecosystem and public health condition first order tidal creeks. *Relationship to NOAA program*: This research supports NOAA's ecosystem management goal by addressing the question of whether the impairment of tidal creek ecosystems associated with landscape development affects human uses of tidal creeks (swimmable, fishable). *Geographic scope*: regional *Time Frame*: medium (2-5 years)

5.) Please provide a listing of 3-5 major accomplishments in the last five years.

- Making the HML functional for conducting a broad range of marine research from the molecular to the ecosystem scale.
- Development of a genomics based approach for assessing and measuring the cumulative health of marine organisms through a partnership with academic and state agencies.
- Development a conceptual model of interactions between the coastal landscape and tidal creek ecosystems that can from a basis for inclusion in the next generation of national and regional monitoring programs.

6.) Please provide a summary of legal mandates for the work in the laboratory/center.

- Joint Project Agreement Establishing the HML
- Coastal Ocean Program
- Coastal Zone Management Act

- Coral Reef Conservation Act
- Endangered Species Act of 1973
- Estuary Protection Act
- Estuary Restoration Act of 2000
- Harmful Algal Bloom and Hypoxia Research and Control Act of 1998
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Mammal Protection Act
- National Aquaculture Act
- National Climate Program Act
- National Coastal Monitoring Act
- National Contaminated Sediment Assessment and Management Act
- Exec. Order 13089 - Coral Reef Protection